## (19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 3 March 2005 (03.03.2005)

**PCT** 

## (10) International Publication Number WO 2005/019380 A1

(51) International Patent Classification<sup>7</sup>: G02F 1/141

C09K 19/40,

(21) International Application Number:

PCT/GB2004/003529

(22) International Filing Date: 16 August 2004 (16.08.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

0319269.7

16 August 2003 (16.08.2003) GB

(71) Applicant (for all designated States except US): CAMBRIDGE UNIVERSITY TECHNICAL SERVICES LIMITED [GB/GB]; The Old Schools, Cambridge CB2 1TN (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): CROSSLAND, William, Alden [GB/GB]; 15 School Lane, Harlow, Essex CM20 2QD (GB). DAVEY, Anthony, Bernard [GB/GB]; 30 Argyle Street, Cambridge CB1 3LR (GB).

(74) Agents: HEDLEY, Nicholas, James, Matthew et al.; Kilburn & Strode, 20 Red Lion Street, London WC1R 4PJ (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

## Published:

with international search report

[Continued on next page]

(54) Title: BISTABLE FERROELECTRIC LIQUID CRYSTAL CELLS AND DEVICES USING SILOXANE OLIGMOMERS AND THE USE THEREOF

$$RSiR'_{2}(OSiR'_{2})_{p} - (CH_{2})_{n} O \longrightarrow_{Y_{m}} T \longrightarrow_{Y_{m}} O X$$
 (III)

(57) Abstract: The present invention provides a liquid crystal cell that is bistable in operation and comprises a ferroelectric compound having a smectic C phase, arranged between alignment layers of polyamide or polyester. Said compound has the general formula (I) wherein R represents an alkyl group having from 1 to 10 carbon atoms or the group (II) each R' represents an alkyl group having from 1 to 4 carbon atoms, T is (a) or (b), X represents an alkyl or halogen-substituted alkyl group having at least one chiral centre, Y represents a fluorine atom, m has a value of 0, 1 or 2, p has a value of 2, 3 or 4 and n has a value of 10, 11 or 12.

## WO 2005/019380 A1



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.